selecting the animal with the highest quantity of cells expressing an antigen that is targeted by MHC-DQ antibodies as MHC-DQD, thereby selecting for robustness among two or more animals.

Claim 7 (Original): A method for selecting for robustness among two or more animals, the method comprising the steps of:

providing two or more animals of the same species;

determining in each animal the proliferation frequency of CD4 antigen-expressing cells; and

selecting the animal with the lowest proliferation frequency of CD4 antigen-expressing cells, thereby selecting for robustness among two or more animals.

Claim 8 (Original): The method of claim 1, wherein the species is selected from the group consisting of Bos taurus, Sus scrofa, Ovis aries, Bison bison, Babalus babalus, Gallus domesticus, Meleagrus gallopavo, Anas rubripes, and Branta canadensis.

Claim 9 (Original): The method of claim 2, wherein the species is selected from the group consisting of Bos taurus, Sus scrofa, Ovis aries, Bison bison, Babalus babalus, Gallus domesticus, Meleagrus gallopavo, Anas rubripes, and Branta canadensis.

Claim 10 (Original): The method of claim 3, wherein the species is selected from the group consisting of Bos taurus, Sus scrofa, Ovis aries, Bison bison, Babalus babalus, Gallus domesticus, Meleagrus gallopavo, Anas rubripes, and Branta canadensis.

Claim 11 (Original): The method of claim 4, wherein the species is selected from the group consisting of Bos taurus, Sus scrofa, Ovis aries, Bison bison, Babalus babalus, Gallus domesticus, Meleagrus gallopavo, Anas rubripes, and Branta canadensis.

Claim 12 (Original): The method of claim 5, wherein the species is selected from the group consisting of Bos taurus, Sus scrofa, Ovis aries, Bison bison, Babalus babalus, Gallus domesticus, Meleagrus gallopavo, Anas rubripes, and Branta canadensis.

Claim 13 (Original): The method of claim 6, wherein the species is selected from the group consisting of Bos taurus, Sus scrofa, Ovis aries, Bison bison, Babalus babalus, Gallus domesticus, Meleagrus gallopavo, Anas rubripes, and Branta canadensis.

Claim 14 (Original): The method of claim 7, wherein the species is selected from the group consisting of Bos taurus, Sus scrofa, Ovis aries, Bison bison, Babalus babalus, Gallus domesticus, Meleagrus gallopavo, Anas rubripes, and Branta canadensis.

Claim 15 (Original): A method for selecting for robustness among two or more animals, the method comprising the steps of:

providing two or more animals of the same species;

determining in each animal the quantities of CD16 antigen-exprcssing cells, CD16 and CD2 double-positive antigen-expressing cells, CD8 antigen-expressing cells, MHC-DQ antigen-expressing cells, cells expressing an antigen that is targeted by MHC-DQ

antibodies as MHC-DQB, and cells expressing an antigen that is targeted by MHC-DQ antibodies as MHC-DQD;

determining in each animal the proliferation frequency of CD4 antigen-expressing cells; and

selecting the animal with the lowest quantity of CD16 antigen-expressing cells, the lowest quantity of CD16 and CD2 double-positive antigen-expressing cells, the lowest quantity of CD8 antigen-expressing cells, the highest quantity of MHC-DQ antigen-expressing cells, the highest quantity of cells expressing an antigen targeted by MHC-DQ antibodies as MHC-DQB, the highest quantity of cells expressing an antigen targeted by MHC-DQ antibodies as MHC-DQD, and the lowest proliferation frequency of CD4 antigen-expressing cells, thereby selecting for robustness among two or more animals.

Claim 16 (Original): The method of claim 15, wherein the species is selected from the group consisting of Bos taurus, Sus scrofa, Ovis aries, Bison bison, Babalus babalus, Gallus domesticus, Meleagrus gallopavo, Anas rubripes, and Branta canadensis.

Claim 17 (Original): A method for selecting for robustness among two or more animals, the method comprising the steps of:

providing two or more animals of the same species;

determining in each animal the quantity of CD16 antigen-expressing cells;

determining a statistically significant association between an animal's quantity of CD16 antigen-expressing cells and robustness; and

selecting for the animal in order to improve robustness based on the association.

Claim 18 (Original): A method for selecting for robustness among two or more animals, the method comprising the steps of:

providing two or more animals of the same species;

determining in each animal the quantity of CD16 and CD2 double-positive antigen-expressing cells;

determining a statistically significant association between an animal's quantity of CD16 and CD2 double-positive antigen-expressing cells and robustness; and

selecting for the animal in order to improve robustness based on the association.

Claim 19 (Original): A method for selecting for robustness among two or more animals, the method comprising the steps of:

providing two or more animals of the same species;

determining in each animal the quantity of CD8 antigen-expressing cells;

determining a statistically significant association between an animal's quantity of CD8 antigen-expressing cells and robustness; and

selecting for the animal in order to improve robustness based on the association.

Claim 20 (Original): A method for selecting for robustness among two or more animals, the method comprising the steps of:

providing two or more animals of the same species;

determining in each animal the quantity of MHC-DQ antigen-expressing cells;

determining a statistically significant association between an animal's quantity of MHC-DQ antigen-expressing cells and robustness; and

selecting for the animal in order to improve robustness based on the association.

Claim 21 (Original): A method for selecting for robustness among two or more animals, the method comprising the steps of:

providing two or more animals of the same species;

determining in each animal the quantity of cells expressing an antigen that is targeted by MHC-DQ antibodies as MHC-DQB;

determining a statistically significant association between an animal's quantity of cells expressing an antigen that is targeted by MHC-DQ antibodies as MHC-DQB and robustness; and

selecting for the animal in order to improve robustness based on the association.

Claim 22 (Original): A method for selecting for robustness among two or more animals, the method comprising the steps of:

providing two or more animals of the same species;

determining in each animal the quantity of cells expressing an antigen that is targeted by MHC-DQ antibodies as MHC-DQD;

determining a statistically significant association between an animal's quantity of cells expressing an antigen that is targeted by MHC-DQ antibodies as MHC-DQD; and

selecting for the animal in order to improve robustness based on the association.

Claim 23 (Original): A method for selecting for robustness among two or more animals, the method comprising the steps of:

providing two or more animals of the same species;

determining in each animal the proliferation frequency of CD4 antigen-expressing cells;

determining a statistically significant association between an animal's proliferation frequency of CD4 antigen-expressing cells and robustness; and

selecting for the animal in order to improve robustness based on the association.

Claim 24 (Original): The method of claim 17 wherein the species is selected from the group consisting of Bos taurus, Sus scrofa, Ovis aries, Bison bison, Babalus babalus, Gallus domesticus, Meleagrus gallopavo, Anas rubripes, and Branta canadensis.

Claim 25 (Original): The method of claim 18 wherein the species is selected from the group consisting of Bos taurus, Sus scrofa, Ovis aries, Bison bison, Babalus babalus, Gallus domesticus, Meleagrus gallopavo, Anas rubripes, and Branta canadensis.

Claim 26 (Original): The method of claim 19 wherein the species is selected from the group consisting of Bos taurus, Sus scrofa, Ovis aries, Bison bison, Babalus babalus, Gallus domesticus, Meleagrus gallopavo, Anas rubripes, and Branta Canadensis.

Claim 27 (Original): The method of claim 20 wherein the species is selected from the group consisting of Bos taurus, Sus scrofa, Ovis aries, Bison bison, Babalus babalus, Gallus domesticus, Meleagrus gallopavo, Anas rubripes, and Branta Canadensis.

Claim 28 (Original): The method of claim 21 wherein the species is selected from the group consisting of Bos taurus, Sus scrofa, Ovis aries, Bison bison, Babalus babalus, Gallus domesticus, Meleagrus gallopavo, Anas rubripes, and Branta Canadensis.

Claim 29 (Original): The method of claim 22 wherein the species is selected from the group consisting of Bos taurus, Sus scrofa, Ovis aries, Bison bison, Babalus babalus, Gallus domesticus, Meleagrus gallopavo, Anas rubripes, and Branta Canadensis.

Claim 30 (Original): The method of claim 23 wherein the species is selected from the group consisting of Bos taurus, Sus scrofa, Ovis aries, Bison bison, Babalus babalus, Gallus domesticus, Meleagrus gallopavo, Anas rubripes, and Branta Canadensis.

Claim 31 (Original): A method for selecting for robustness among two or more animals, the method comprising the steps of:

providing two or more animals of the same species;

obtaining a biological sample from the animals, wherein the sample comprises whole blood;

determining in each animal the quantity of CD16 antigen-expressing cells; and

selecting the animal with the lowest quantity of CD16 antigen-expressing cells, thereby selecting for robustness among two or more animals.

Claim 32 (Original): A method for selecting for robustness among two or more animals, the method comprising the steps of:

providing two or more animals of the same species;

obtaining a biological sample from the animals, wherein the sample comprises whole blood;

determining in each animal the quantity of CD16 and CD2 double-positive antigen-expressing cells; and

selecting the animal with the lowest quantity of CD16 and CD2 double-positive antigen-expressing cells, thereby selecting for robustness among two or more animals.

Claim 33 (Original): A method for selecting for robustness among two or more animals, the method comprising the steps of:

providing two or more animals of the same species;

obtaining a biological sample from the animals, wherein the sample comprises whole blood;

determining in each animal the quantity of CD8 antigen-expressing cells; and

selecting the animal with the lowest quantity of CD8 antigen-expressing cells, thereby selecting for robustness among two or more animals.

Claim 34 (Original): A method for selecting for robustness among two or more animals, the method comprising the steps of:

providing two or more animals of the same species;

obtaining a biological sample from the animals, wherein the sample comprises whole blood;

determining in each animal the quantity of MHC-DQ antigen-expressing cells; and

selecting the animal with the highest quantity of MHC-DQ antigen-expressing cells, thereby selecting for robustness among two or more animals.

Claim 35 (Original): A method for selecting for robustness among two or more animals, the method comprising the steps of:

providing two or more animals of the same species;

obtaining a biological sample from the animals, wherein the sample comprises whole blood;

determining in each animal the quantity of cells expressing an antigen that is targeted by MHC-DQ antibodies as MHC-DQB; and

selecting the animal with the highest quantity of cells expressing an antigen that is targeted by MHC-DQ antibodies as MHC-DQB, thereby selecting for robustness among two or more animals.

Claim 36 (Original): A method for selecting for robustness among two or more animals, the method comprising the steps of:

providing two or more animals of the same species;

obtaining a biological sample from the animals, wherein the sample comprises whole blood;

determining in each animal the quantity of cells expressing an antigen that is targeted by MHC-DQ antibodies as MHC-DQD; and

selecting the animal with the highest quantity of cells expressing an antigen that is targeted by MHC-DQ antibodies as MHC-DQD, thereby selecting for robustness among two or more animals.

Claim 37 (Original): A method for selecting for robustness among two or more animals, the method comprising the steps of:

providing two or more animals of the same species;

obtaining a biological sample from the animals, wherein the sample comprises whole blood; determining in each animal the proliferation frequency of CD4 antigen-expressing cells; and selecting the animal with the lowest proliferation frequency of CD4 antigen-expressing cells,

thereby selecting for robustness among two or more animals.

Claim 38 (Original): The method of claim 31 wherein the species is selected from the group consisting of Bos taurus, Sus scrofa, Ovis aries, Bison bison, Babalus babalus, Gallus domesticus, Meleagrus gallopavo, Anas rubripes, and Branta canadensis.

Claim 39 (Original): The method of claim 32 wherein the species is selected from the group consisting of Bos taurus, Sus scrofa, Ovis aries, Bison bison, Babalus babalus, Gallus domesticus, Meleagrus gallopavo, Anas rubripes, and Branta canadensis.

Claim 40 (Original): The method of claim 33 wherein the species is selected from the group consisting of Bos taurus, Sus scrofa, Ovis aries, Bison bison, Babalus babalus, Gallus domesticus, Meleagrus gallopavo, Anas rubripes, and Branta Canadensis.

Claim 41 (Original): The method of claim 34 wherein the species is selected from the group consisting of Bos taurus, Sus scrofa, Ovis aries, Bison bison, Babalus babalus, Gallus domesticus, Meleagrus gallopavo, Anas rubripes, and Branta Canadensis.

Claim 42 (Original): The method of claim 35 wherein the species is selected from the group consisting of Bos taurus, Sus scrofa, Ovis aries, Bison bison, Babalus babalus, Gallus domesticus, Meleagrus gallopavo, Anas rubripes, and Branta Canadensis.

Claim 43 (Original): The method of claim 36 wherein the species is selected from the group consisting of Bos taurus, Sus scrofa, Ovis aries, Bison bison, Babalus babalus, Gallus domesticus, Meleagrus gallopavo, Anas rubripes, and Branta Canadensis.

Claim 44 (Original): The method of claim 37 wherein the species is selected from the group consisting of Bos taurus, Sus scrofa, Ovis aries, Bison bison, Babalus babalus, Gallus domesticus, Meleagrus gallopavo, Anas rubripes, and Branta Canadensis.

Claim 45 (Original): A method for selecting for robustness among two or more animals, the method comprising the steps of:

providing two or more animals of the same species;

obtaining a biological sample from the animals, wherein the sample comprises whole blood;

determining in each animal the quantity of CD16 antigen-expressing cells; determining a statistically significant association between an animal's quantity of CD16 antigen-expressing cells and robustness; and

selecting for the animal in order to improve robustness based on the association.

Claim 46 (Original): A method for selecting for robustness among two or more animals, the method comprising the steps of:

providing two or more animals of the same species;

obtaining a biological sample from the animals, wherein the sample comprises whole blood;

determining in each animal the quantity of CD16 and CD2 double-positive antigen-expressing cells;

determining a statistically significant association between an animal's quantity of CD16 and CD2 double-positive antigen-expressing cells and robustness; and

selecting for the animal in order to improve robustness based on the association.

Claim 47 (Original): A method for selecting for robustness among two or more animals, the method comprising the steps of:

providing two or more animals of the same species;

obtaining a biological sample from the animals, wherein the sample comprises whole blood;

determining in each animal the quantity of CD8 antigen-expressing cells;

determining a statistically significant association between an animal's quantity of CD8 antigen-expressing cells and robustness; and

selecting for the animal in order to improve robustness based on the association.

Claim 48 (Original): A method for selecting for robustness among two or more animals, the method comprising the steps of:

providing two or more animals of the same species;

obtaining a biological sample from the animals, wherein the sample comprises whole blood;

determining in each animal the quantity of MHC-DQ antigen-expressing cells;

determining a statistically significant association between an animal's quantity of MHC-DQ antigen-expressing cells and robustness; and

selecting for the animal in order to improve robustness based on the association.

Claim 49 (Original): A method for selecting for robustness among two or more animals, the method comprising the steps of:

providing two or more animals of the same species;

obtaining a biological sample from the animals, wherein the sample comprises whole blood;

determining in each animal the quantity of cells expressing an antigen that is targeted by MHC-DQ antibodies as MHC-DQB;

determining a statistically significant association between an animal's quantity of cells expressing an antigen that is targeted by MHC-DQ antibodies as MHC-DQB and robustness; and

selecting for the animal in order to improve robustness based on the association.

Claim 50 (Original): A method for selecting for robustness among two or more animals, the method comprising the steps of:

providing two or more animals of the same species;

obtaining a biological sample from the animals, wherein the sample comprises whole blood;

determining in each animal the quantity of cells expressing an antigen that is targeted by MHC-DQ antibodies as MHC-DQD;

determining a statistically significant association between an animal's quantity of cells expressing an antigen that is targeted by MHC-DQ antibodies as MHC-DQD; and

selecting for the animal in order to improve robustness based on the association.

Claim 51 (Original): A method for selecting for robustness among two or more animals, the method comprising the steps of:

providing two or more animals of the same species;

obtaining a biological sample from the animals, wherein the sample comprises whole blood;

determining in each animal the proliferation frequency of CD4 antigen-expressing cells;

determining a statistically significant association between an animal's proliferation frequency of CD4 antigen-expressing cells and robustness; and

selecting for the animal in order to improve robustness based on the association.

Claim 52 (Original): The method of claim 45 wherein the species is selected from the group consisting of Bos taurus, Sus scrofa, Ovis aries, Bison bison, Babalus babalus, Gallus domesticus, Meleagrus gallopavo, Anas rubripes, and Branta canadensis.

Claim 53 (Original): The method of claim 46 wherein the species is selected from the group consisting of Bos taurus, Sus scrofa, Ovis aries, Bison bison, Babalus babalus, Gallus domesticus, Meleagrus gallopavo, Anas rubripes, and Branta canadensis.

Claim 54 (Original): The method of claim 47 wherein the species is selected from the group consisting of Bos taurus, Sus scrofa, Ovis aries, Bison bison, Babalus babalus, Gallus domesticus, Meleagrus gallopavo, Anas rubripes, and Branta Canadensis.

Claim 55 (Original): The method of claim 48 wherein the species is selected from the group consisting of Bos taurus, Sus scrofa, Ovis aries, Bison bison, Babalus babalus, Gallus domesticus, Meleagrus gallopavo, Anas rubripes, and Branta Canadensis.

Claim 56 (Original): The method of claim 49 wherein the species is selected from the group consisting of Bos taurus, Sus scrofa, Ovis aries, Bison bison, Babalus babalus, Gallus domesticus, Meleagrus gallopavo, Anas rubripes, and Branta Canadensis.

Claim 57 (Original): The method of claim 50 wherein the species is selected from the group consisting of Bos taurus, Sus scrofa, Ovis aries, Bison bison, Babalus babalus, Gallus domesticus, Meleagrus gallopavo, Anas rubripes, and Branta Canadensis.

Claim 58 (Original): The method of claim 51 wherein the species is selected from the group consisting of Bos taurus, Sus scrofa, Ovis aries, Bison bison, Babalus babalus, Gallus domesticus, Meleagrus gallopavo, Anas rubripes, and Branta canadensis.